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HEADS UP!

LANSCCE, AOT staff receive Distinguished Performance Awards

Several members of LANSCE and AOT Divisions were recently recognized with Los Alamos Distinguished Performance Awards. The awards are presented for outstanding and unique contributions that bring distinction to the Laboratory.

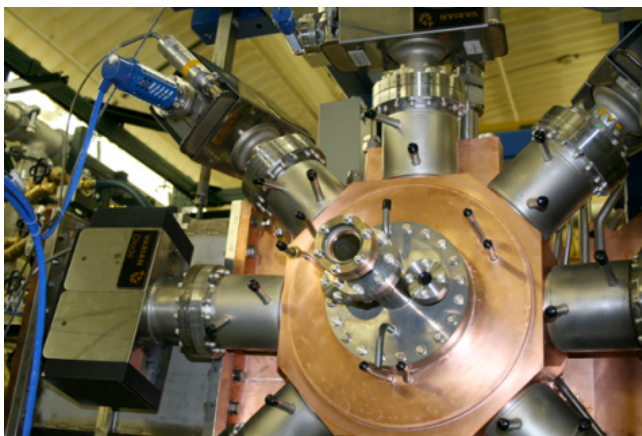


Charles T. Kelsey IV (LANSCCE-LC) received an individual Los Alamos Distinguished Performance Award for redefining the LANSCE accelerator design basis accident in an innovative, scientific manner that will result in significant cost and time savings.

Large team awards went to the following groups.

Charles Kelsey

The Free Electron Laser Injector Thermal Test Team (AOT, ISR) made groundbreaking improvements in free electron laser technology, producing results unmatched by any accelerator technology research organization in the world. Members of the team include Rodney McCrady (AOT-ABS), Pilar Marroquin, Martin Pieck, and David Warren (AOT-IC); Felix Olivas (AOT-MDE); Gerald Bolme, Lawrence Castellano, Sung Kwon, Mark Prokop, Daniel Rees, William Roybal, Phillip Torrez, and Karen Young (AOT-RFE).

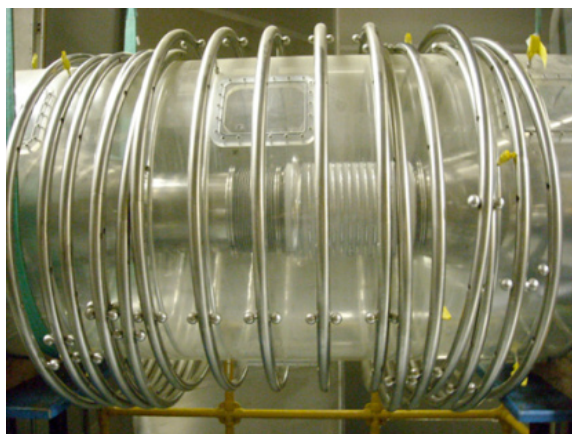


The LANSCE H⁺ Cockcroft-Walton Accelerating Column Rebuild Team (AOT, PF) rebuilt the damaged Cockcroft-Walton column, which is critical for the production of medical isotopes, based on historic log books and photographs. Members include Henry Alvestad, Jr., Kenneth Johnson,

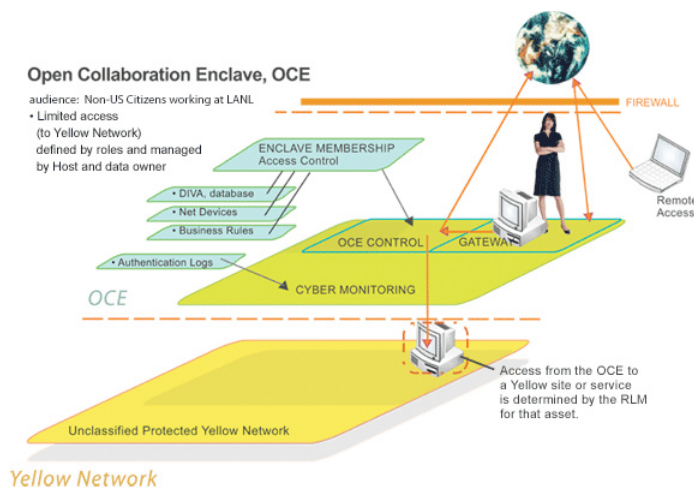
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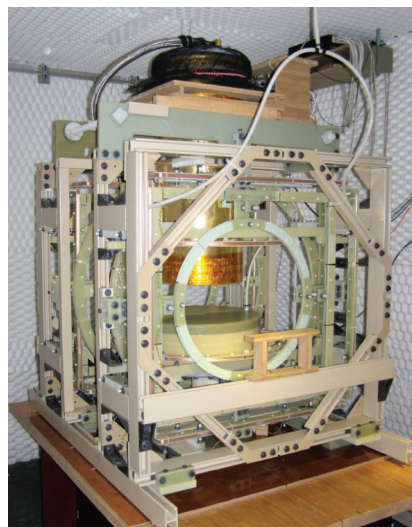
Nathan Okamoto, Gary Rouleau, Lawrence Rybarczyk, Gary Sanchez, and Thomas Zaugg (AOT-ABS); Derwin Martinez (AOT-IC); James Abernathey, Michael Borden, Jeffry Casados, John Chamberlin, Claude Conner, Jonathan Ferris, Jeffrey Hannaford, John Harrison, J.W. Isern, Alfred Maestas, Angela Naranjo, James O'Hara, Felix Olivas, Joseph Raybun, Brandon Roller, Brian Smith, Tsuyoshi Tajima, and Victor Vigil (AOT-MDE); and William Baldwin, Jerome Reynolds and Keith Stephen (AOT-OPS).



The Open Collaboration Enclave (OCE) Team (ACS, ADE, ASM, CIO, CT, CDS, DCS, EES, ISR, LANSCE, MPA, NIE, PS, SAE, STBPO, T), which includes Dean Barr (LANSCE-LC) designed and implemented the OCE for foreign nationals using an innovative architecture based on VPN technology.



The Second Line of Defense Team (ASM, C, CFO, CT, D, DCS, IRM, LANSCE, MST, N, NN, SAFE, WES), which includes Victor Gavron (LANSCE-DO) demonstrated outstanding technical leadership in support of the DOE/NSA Office of International Material Protection and Cooperation.



The ULFNMR Physics and Engineering MagViz Team (AET, AOT, ASM, C, CFO, CS, ES, HX, ISR, LDRD, MPA, N, P, PF) successfully demonstrated the MagViz liquid explosives detection technology at the Albuquerque International Sunport. Team members include David Barlow (AOT-ABS); Jeffrey Hill, Martin Pieck, and John Power

(AOT-IC); Michael Borden, Catherine Chapman, Tony Gomez, Alfred Maestas, Joseph Raybun, Brandon Roller, Victor Vigil, and James Witt (AOT-MDE); Joseph Bradley, III, Louis Fernandez, and Matthew Fresquez (AOT-RFE).

Lacerda receives mentoring award

Alex Lacerda (LANSCE-DO) is the recipient of a LANL Career Development Mentoring Award in recognition of exemplary mentoring. Vivien Zapf (MPA-NHMFL) nominated Lacerda because he provided her with the right combination of mentoring and support, equipment, and resources. The opportunities for invited talks, workshops, and recognition enabled her to develop new collaborations and research directions.



Alex Lacerda

The Women's Employee Resource Group sponsors the awards to promote career development of women at the Laboratory by recognizing and applauding mentors who exhibit exemplary informal or formal mentoring. Mentor nominees may be male or female, but the employee being mentored must be female. LANS regular employee, limited term employee, or contract workers of the Laboratory are eligible to be nominated. The mentor-mentee relationship may be formal or informal.

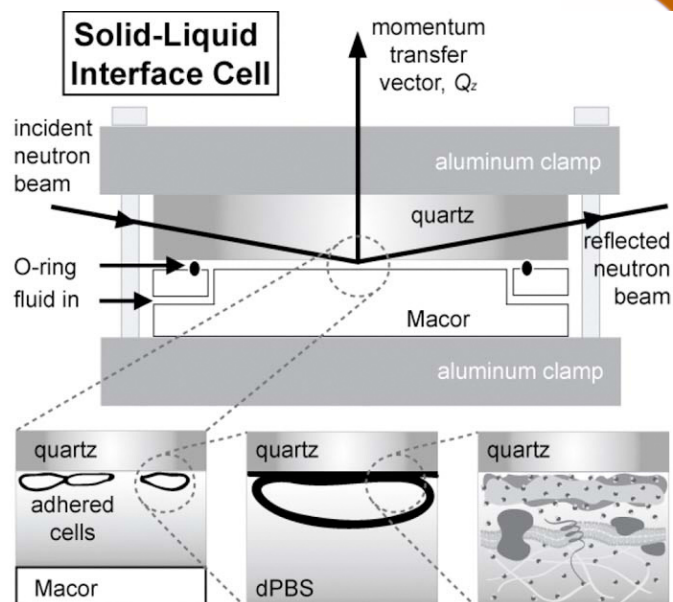
The Women's Employee Resource Group has sponsored the Career Development Mentoring Awards since 1997 with support from HROED and the Work Environment Diversity Work Group.

Neutron reflectometry provides first sub-nanometer visualization of live cell adhesion

Neutron reflectometry (NR) at LANSCE's Lujan Center is used to probe the structure of thin films at various interfaces. Over the past 30 years, NR has evolved to become key in the characterization of thin films. Typically, NR measurements are performed on model systems in which samples are homogeneous over large areas. Because of their complexity and inhomogeneity, the measurement of live objects, such as cells adherent to a solid substrate, is a radical departure from a typical system measured via NR. However, in situ NR measurements of biologically relevant objects are needed to study the detailed structure and biophysics of cell attachment. Hillary Smith, Michael Jablin, and Jaroslaw Majewski (LANSCE-LC); and Joseph Hickey, Antoinette Trujillo, and James Freyer (B-9) used NR to examine living mouse fibroblast cells adherent on a growth media coated quartz substrate. This is the first visualization and quantization of the interface between live cells and a substrate with sub-nanometer resolution using NR.

At right, the figure inset panels show a cartoon representation of how the cells behave in the adherence region. The membrane region, approximately 80 Å in thickness, contains the membranes of cells that are inhomogeneously distributed or undulating, likely conforming to the non-planar geometry of the supporting adherence proteins. Reference: "Mouse Fibroblast Cell Adhesion Studied by Neutron Reflectometry," *Biophysical Journal*, in press. This work benefited from the use of the Lujan Neutron Scattering Center at LANSCE, funded by the DOE Office of Basic Energy Sciences. The National Cancer Institute, National Institutes of Health supported the work.

Technical contact: Jarek Majewski



Schematic of the NR measurements. The quartz substrate with adherent cells is clamped against a Macor disk with a 0.2-0.3 mm thick gap where the subphase (deuterated phosphate buffered saline, dPBS) is injected. The neutron beam penetrates the lateral face of the quartz substrate to reach the solid-liquid interface where the cells reside. Insets show a cartoon representation of how the cells behave in the adherence region. Immediately adjacent to the quartz substrate is a layer of adherence proteins (~120 Å thick), on top of which sits the membrane region (~80 Å thick), followed by a diffuse profile representing the interior of the cell. Small dots in the far right panel represent deuterated water molecules as a function of distance from the quartz substrate.

Celebrating service

Congratulations to the following AOT employees celebrating service anniversaries this month:

John Eddleman, AOT-MDE
Martin Martinez, AOT-OPS

30 years
25 years

AOT & The Pulse

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To submit news items or for more information,
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To read past issues see
lansce.lanl.gov/pulse.shtml.

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HeadsUP!

Sharp edges hurt, dispose properly



A custodian recently sustained a laceration while attempting to handle a plastic bag of trash. The trash bag contained a metal can with the exposed edge of the lid protruding from the plastic bag. Sutures were required to close the laceration. Facility tenants are reminded to not dispose of items which may contain sharp or exposed edges that could injure one of our custodians. Proper disposal includes setting items with sharp edges into a covered can or bending the sharp edges into the original container. Facility occupants should not attempt to use custodial equipment without authorization; recently a vacuum cleaner was used and the electrical cord was damaged. The building occupant attempted to repair the cord with tape, which could have exposed the custodial staff to a serious hazard.